

REMARKS

The Examiner is thanked for the thorough examination of the present application. The FINAL Office Action, however, continued to reject all pending claims 14-17 and 19-20. Specifically, claims 14-17, 19, and 20 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Chen (US Patent 6,392,263 B1). Applicant respectfully requests reconsideration and withdrawal of the rejections for at least the following reasons.

Rejections of claims 14-20 under 35 U.S.C. 103

Claim 14 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over AAPA in view of Zhao. This rejection is respectfully traversed.

Independent claim 14 recites:

14. A CMOS image sensor device comprising:
shallow trench isolation regions in a semiconductor substrate,
said shallow trench isolation regions separate said device;
a sensor diode in said semiconductor substrate comprising **a first terminal** and a second terminal;
a plurality of gates for transistors in said CMOS image sensor
wherein said gates comprise a conductor layer overlying said
semiconductor substrate with an insulating layer therebetween and
wherein said transistors include reset transistors;
source/drain regions for said transistors wherein said source
regions of said reset transistors are formed in said first terminals of said
sensor diodes; and
**double diffused sources only in said reset transistor sources
to complete an asymmetrical source/drain structure;**
wherein said double diffused sources totally overlap said reset
transistor sources; and
said source/drain regions and double diffused sources contact
said shallow trench isolation regions.

(*Emphasis added*). Claim 14 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

As reflected above, in claim 14, said double diffused sources and first terminal are different devices, respectively. The first terminal of the embodiment is n-well 116. (See e.g., lines 4-9 of page 11 and Fig 3 of the specification). The double diffused sources of the embodiment is DDS 152. (See lines 12-15 of page 15 and Fig. 5 of the specification). Accordingly, the first terminal (n-well) cannot be constructed as double diffused sources.

The Office Action asserts that Chen teaches n-type double diffused sources 305. (citing Fig. 3). In fact, symbol 305 in Fig. 3 of Chen is just an n-well, not a double diffused source. (See col. 5, line 38 of Chen). Therefore, it is clear that Chen and AAPA, alone or in combination, fail to teach double diffused sources and further fail to teach the asymmetrical source/drain structure.

For at least this reason, claim 14 is allowable over the cited references. Insofar as claims 15-17 and 19-20 depend from claim 14, these claims are also allowable at least by virtue of their dependency. In addition, Applicant notes additional distinctions below.

Rejection of claim 15

Claim 15 had been previously amended to add limitation “said double diffused sources have a thicker thickness than said source/drain regions”. The described product limitation, not only original process limitation, is considered to be sufficiently characterizing and is suitable to be characterizing element. Additionally and

notwithstanding the foregoing reasons for the allowability of independent claim, this dependent claim recites further features that are patentably distinct from the prior art record.

As a separate and independent basis for the patentability of all claims, Applicant submits that the combination of APA and Chen is improper and therefore does not render the claims obvious. In this regard, the Office Action combined Chen with APA to reject the claims on the solely expressed basis that “it would have been obvious ... to improve quality of the sensor by reducing leakage current.” (see e.g., Office Action, p. 3)

This rationale is both incomplete and improper in view of the established standards for rejections under 35 U.S.C. § 103.

In this regard, the MPEP section 2141 states:

The Supreme Court in KSR reaffirmed the familiar framework for determining obviousness as set forth in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966))... As reiterated by the Supreme Court in KSR, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Ascertaining the differences between the claimed invention and the prior art; and
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art.

In addition:

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention and
(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

As reflected above, the foregoing approach to obviousness determinations was recently confirmed by the United States Supreme Court decision in KSR INTERNATIONAL CO. V. TELEFLEX INC. ET AL. 550 U.S. 1, 82 USPQ2d 1385, 1395-97 (2007), where the Court stated:

In *Graham v. John Deere Co. of Kansas City*, 383 U. S. 1 (1966), the Court set out a framework for applying the statutory language of §103, language itself based on the logic of the earlier decision in *Hotchkiss v. Greenwood*, 11 How. 248 (1851), and its progeny. See 383 U. S., at 15–17. The analysis is objective:

“Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Id.*, at 17–18.

Indeed, as now expressly embodied in MPEP 2143, “[t]he **key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious**. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” (*Emphasis added, MPEP 2143*). “Objective evidence relevant to the issue of obviousness **must** be evaluated by Office personnel.” (MPEP 2141). “The key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation of the reason(s)**

why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 ***should be made explicit***. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that “[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (MPEP 2141).

Simply stated, the Office Action has failed to at least (1) ascertain the differences between and prior art and the claims in issue; and (2) resolve the level of ordinary skill in the art. Furthermore, the alleged rationale for combining the references is merely an improper conclusory statement that embodies clear and improper hindsight rationale. For at least these additional reasons, Applicant submits that the rejections of all claims are improper and should be withdrawn.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

/Daniel R. McClure/

By:

Daniel R. McClure
Registration No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
600 Galleria Pkwy, SE
Suite 1500
Atlanta, GA 30339
770-933-9500